



Inspector Technical Training: Building Systems

Building Systems Challenges

Challenges related to Building Systems for voucher unit tenants/owners:

- Voucher units can be located within multi-family buildings, e.g.: condominiums or apartments.
- If access to Building Systems is required, someone other than the voucher unit tenant/owner might need to provide access.
- Mechanical Rooms in larger buildings may contain equipment that services multiple units.

Building Systems

Building Systems include:

- Heating, Ventilation, and Air Conditioning (HVAC)
- Elevators
- Radon
- Geothermal / “Green” Buildings

HVAC



Residential, oil-fired boiler heat

HVAC



Radiant floor heat



Radiant heat manifold

HVAC



Commercial Boilers

HVAC



Chillers



Cooling Towers

HVAC: Condenser Units



Damaged Fins

HVAC Disconnects



Internal Cover Missing



Protective Internal Cover

HVAC: Swamp Coolers



Direct Vent

- ▶ A direct vent system consists of two parts: one for the exhaust; one for combustion air intake
- ▶ The appliance is a completely sealed combustion chamber; no air from the house is used for combustion
- ▶ The exhaust vents can go either out through a sidewall or through the roof.

Direct Vent



Types of Ventilation



Slant Back and Ridge Vent



Turbine

Elevators



Ask for Certificate if not posted in elevator.



Misaligned cab

Radon

- Radon is a naturally-occurring, radioactive gas. It does not have a smell, taste or color.
- The primary routes of potential human exposure to radon are inhalation and ingestion.
- Radon in the ground, groundwater or building materials enters working and living spaces and disintegrates into its decay products.

Radon Mitigation

Mitigation of radon in the air is accomplished through ventilation, either collected below a concrete floor slab or membrane on the ground, or by increasing the air changes per hour in the building.



Geothermal Energy

Geothermal energy is power generated from natural steam, hot water, hot rocks, or lava in the Earth's crust.

Soil temperatures are warmer than the air in winter and cooler than the air in summer. Geothermal heat pumps use the earth's constant temperatures to heat and cool buildings.

Geothermal heat pumps transfer heat from the ground (or water) into buildings during the winter and reverse the process in the summer

“Green Building”

- ▶ **Green building, green construction or sustainable building** refers to both a structure and use of processes that are environmentally responsible and resource-efficient throughout a building's life-cycle.
- ▶ *LEED*–certified buildings are resource efficient
 - uses less water and energy and reduce greenhouse gas emissions; save money

Questions?

Thank you for your participation!!

